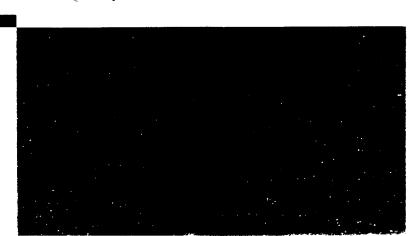


HI-MILL MANUFACTURING COMPANY
HIGHLAND, OAKLAND COUNTY, MICHIGAN
CERCLIS NO. MID005341714
NOVEMBER 14, 1991

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES PUBLIC HEALTH SERVICE Agency for Toxic Substances and Disease Registry



THE ATSDR HEALTH ASSESSMENT: A NOTE OF EXPLANATION

Section 104 (i) (7) (A) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, states "...the term 'health assessment' shall include preliminary assessments of potential risks to human health posed by individual sites and facilities, based on such factors as the nature and extent of contamination, the existence of potential pathways of human exposure (including ground or surface water contamination, air emissions, and food chain contamination), the size and potential susceptibility of the community within the likely pathways of exposure, the comparison of expected human exposure levels to the short-term and long-term health effects associated with identified hazardous substances and any available recommended exposure or tolerance limits for such hazardous substances, and the comparison of existing morbidity and mortality data on diseases that may be associated with the observed levels of exposure. The Administrator of ATSDR shall use appropriate data, risks assessments, risk evaluations and studies available from the Administrator of EPA."

In accordance with the CERCLA section cited, ATSDR has conducted this preliminary health assessment on the data in the site summary form. Additional health assessments may be conducted for this site as more information becomes available to ATSDR.

The conclusion and recommendations presented in this Health Assessment are the result of site specific analyses and are not to be cited or quoted for other evaluations or Health Assessments.

Use of trade names is for identification only and does not constitute endorsement by the Public Health Service or the U.S. Department of Health and Human Services.

PRELIMINARY HEALTH ASSESSMENT HI-MILL MANUFACTURING COMPANY HIGHLAND, OAKLAND COUNTY, MICHIGAN CERCLIS NO. MID005341714

Prepared by

Michigan Department of Public Health

Under a Cooperative Agreement with the

Agency for Toxic Substances and Disease Registry

SUMMARY

The Hi-Mill Manufacturing site is listed on the United States Environmental Protection Agency (U.S. EPA) National Priorities List (NPL). Hi-Mill Manufacturing is an operating metal-working company. Former waste disposal practices by the company have apparently resulted in contamination of the soil and ground water on their property with metals and volatile organic chemicals. The wells serving the plant were found to be contaminated with volatile organic chemicals. The wells had already been replaced with bottled water for potable purposes, a new well has been drilled, and the contaminated wells have been abandoned and sealed with cement. The metals contamination in the groundwater may have migrated off-site, but there is no evidence that it has reached any water supply or had any significant effect on nearby surface water bodies.

This site is considered to pose an indeterminate public health hazard because of the potential risk to human health resulting from possible exposure to hazardous substances at concentrations that may result in adverse human health effects. Although there are indications of past exposure of workers in the plant to contaminated drinking water, information on contaminant levels and duration of exposures is unavailable at this time because of the preliminary nature of site-related information. Recommendations include further characterization of site conditions, monitoring of the ground water, and implementation of a health information program for the local residents.

BACKGROUND

A. Site History and Description

The Hi-Mill Manufacturing site was placed on the United States Environmental Protection Agency (U.S. EPA) National Priorities List (NPL) in June 1988. The site is located at 1074 Highland Road on a 2.5-acre site immediately south of State Route 59 and west of the City of Highland, Michigan (see Figure 1). The Hi-Mill property borders on the Highland State Recreation Area and is adjacent to wetlands that may connect to Waterbury Lake.

The manufacturing company fabricates tubular aluminum, copper, and brass parts for the air conditioning and refrigeration industries. It has been in continuous operation since 1946. Previous to 1983, wastewater from pickling operations was deposited in an on-site seepage lagoon. Spray evaporation was also used as a disposal method during this time. As of October 1983, Hi-Mill had installed a recirculation system for process water and had ceased discharge to the lagoon. Waste disposal practices included recycling more of the rinse water and off-site disposal of the remaining waste in a hazardous waste facility (regulated under Subtitle C of the Resource Conservation and Recovery Act). Every two months, wastewater was neutralized with caustic soda and stored in one 1,600 gallon underground tank until it was transported and disposed off-site by General Oil The pickling operation was totally eliminated in 1988 Company. with the result that the underground storage tank system is no longer in use.

In 1981, the Michigan Department of Natural Resources (MDNR) Water Quality Division conducted a hydrogeological study to determine if heavy metals were leaching from the Hi-Mill lagoon into the adjacent marsh. Six monitoring wells were installed in May 1981 adjacent to the marsh and positioned to intercept the east-southeast flow of the ground water. Analyses of shallow ground-water samples showed elevated levels of aluminum, copper, chromium and zinc to the east and southeast of the lagoon. Studies conducted by MDNR lin April 1984 also showed that sediments in the adjacent Waterbury Lake-marsh aquatic ecosystem were found to have detectable concentrations of chromium, copper, nickel and lead.

Analysis of lagoon water and sludge samples taken on October 4, 1983, by Atcon Corporation detected elevated concentrations of chromium, aluminum, copper, nickel and zinc. In November 1983, 142 cubic yards of soil, 34,400 gallons of contaminated sludge, and 63,300 gallons of contaminated water were removed from the waste lagoon area. The lagoon was then filled with sand.

As a result of an analysis conducted in August 1987 by Waste Compliance Services (as part of facility compliance with the requirements of Subtitle C of RCRA), the pickling waste was designated by the Oakland County Health Division and MDNR as hazardous because of chromium and copper concentrations exceeding RCRA or Michigan Hazardous Waste Management Act (Act 64) standards.

As part of a ground-water monitoring program, a Michigan Department of Public Health (MDPH) representative collected samples on July 14, 1988, from seven residential drinking water systems. All homes were on private wells and located approximately 0.25 mile southeast of the site and bordering Waterbury Lake. No volatile organic compounds (VOCs) were detected and the metal concentrations were judged to be acceptable by MDPH. Well water tests from Brooks Elementary School and Highland Junior High School located 2 miles east and 1 mile west of the site, also were negative for these compounds.

On October 3, 1988, water samples were taken by representatives of the MDPH and Oakland County Health Department from the two wells serving the Hi-Mill facility. Previous sampling trials showed inconsistent results. Well #1 is located at the west end of the plant approximately 58 ft from a trichloroethylene (TCE) storage tank, 310 ft from the abandoned and sand filled lagoon and 265 ft from the 1,600 gallon storage area used for acid waste materials (see Figure 1). Well #2 is located at the east end of the facility approximately 300, 100, 100, and 75 ft away from the previously mentioned storage structures. The two wells interconnect into one distribution system which serves the entire plant. Most of the water used at the facility is for domestic purposes by approximately 55 employees. Process water usage was limited to filling dip tanks (used in the pickling process).

Results of these tests by MDPH showed that the two on-site wells used for drinking water were found to be contaminated with TCE. MDPH representatives restricted the water for human consumption although activities such as bathing, sewage disposal and manufacturing procedures (cooling) could have continued using water from the contaminated wells. A public notice to Hi-Mill employees regarding the contamination was also required by MDPH. Bottled water was supplied by Hi-Mill Manufacturing for their employees' use before the above-documented TCE water contamination was detected. This action was in response to employee complaints about the quality of the water. In January 1989, the company drilled a new well to replace the contaminated wells. The contaminated wells were abandoned and sealed with cement in November 1989.

The U.S. EPA is the lead agency for the site with the work plan being reviewed by MDNR. Hi-Mill Manufacturing, as the identified

Potentially Responsible Party (PRP), has hired an environmental consulting firm, Techna Corporation of Pontiac, Michigan, to design and conduct a Remedial Investigation/Feasibility Study (RI/FS). A RI/FS was completed in the Fall of 1989 and a draft RI report was submitted to U.S. EPA in June 1990. The U.S. EPA has rejected the draft RI report, and Hi-Mill has hired Geraghty & Miller, Inc., of Troy, Michigan, to complete the Remedial Investigation to the U.S. EPA's satisfaction.

B. Site Visit

Site visits were conducted by staff from MDPH in July 1988 and October and November 1989. The site is fenced across the front of the facility and can only be reached from that direction by walking through the manufacturing plant. Other sides of the site are surrounded by marshy terrain which would be difficult to traverse by foot. Staff from MDPH indicated in August 1991 that site conditions have not changed appreciably since initial site visits were conducted in 1988 and 1989.

C. Demographics, Land Use and Natural Resource Use

Composite United States Geological Survey maps (7.5 minute topographic quadrangle series, photorevised 1973), show that there are 3,580 houses within a 3-mile radius of the site. Utilizing an estimate of 3.8 persons per house, a total of at least 14,000 individuals are utilizing ground-water wells for drinking water within this 3 mile radius. It should be noted that two trailer parks west of the site, and within the 3 mile radius, were not counted in this total.

The main body of Waterbury Lake is 1,200 feet south of the Hi-Mill building. The North Arm of the lake is 600 feet southwest of the building. The Target Pond and its surrounding wetlands are 500 feet east of the building.

The area is primarily rural with the Highland State Recreation Area located adjacent to the eastern and southern boundary of the Hi-Mill Manufacturing facility. The main activities within the recreational area are hunting, fishing, hiking and possibly berry-picking. There is no fence between the Hi-Mill parking lot and State property and duck hunters using the recreation area often park their vehicles in the Hi-Mill lot and carry their boats to the Target Pond, on State land east of the property. A number of light industries in addition to Hi-Mill are also found within the three mile radius. Brooks Elementary School is located approximately 2 miles east of the site and Highland Junior High School is located approximately 1 mile west.

COMMUNITY HEALTH CONCERNS

Many area residents voiced concerns about possible contamination in their drinking water supplies at a public meeting regarding the site in October 1989. The residents were most concerned about hazards connected with drinking private well water, both at the time and in the future. In response to these concerns, the MDPH sampled private wells east and southeast of the site in November 1989, and did not detect any contaminants.

ENVIRONMENTAL CONTAMINATION AND OTHER HAZARDS

To identify possible facilities that could contribute to the ground water, surface water, soil, sediment or air contamination near the Hi-Mill Manufacturing site, MDPH searched the 1987, 1988, and 1989 Toxic Release Inventory (TRI). TRI is developed by the EPA from chemical release information provided by certain industries. TRI did not contain any information indicating nearby industries may be releasing chemicals which may impact contaminant levels at this site.

Analysis of ground-water samples obtained May 19, 1981, from five on-site monitoring wells (HM1-5) showed elevated concentrations of total aluminum, copper, chromium and zinc when compared to a designated background well, HM6 (Table 1). The total chromium concentrations of the water in the wells varied from less than 50 to 160 parts per billion (ppb). The two wells with the highest chromium concentrations, HM3 (160 ppb) and HM4 (130 ppb) lie to the east of the Hi-Mill lagoon. The aluminum concentrations ranged from 1,800 to 7,900 ppb. Well HM5, located southeast of the lagoon, contained the highest level. Copper concentrations varied from 30 to 840 ppb. Well HM4, located southeast of the lagoon, showed the highest level. The two next highest copper concentrations were 480 ppb in HM3 east of the lagoon and 230 ppb in HM1 east of the edge of the parking lot. Zinc concentrations in the well water samples ranged from less than 50 to 240 ppb. Well HM3 east of the lagoon with 240 ppb was the well with the highest zinc concentration.

Ground-water analysis from on-site monitoring wells during the Remedial Investigation, in March 1990, found up to 21.9 ppb chromium, 98.7 ppb copper, 10.9 ppb silver, 22.2 ppb zinc, 1,100 ppb trichloroethylene, 360 ppb total 1,1-dichloroethylene, and 68 ppb vinyl chloride, in the shallow aquifer. Testing of water from off-site monitoring wells found as much as 45.8 ppb chromium, 149 ppb nickel, 14.6 ppb (estimated) silver, and none of the organic chemicals listed above. The off-site silver concentration was from a well east of Target Pond, and outside the area of influence of the Hi-Mill site.

Results of the analysis of lagoon water and sludge conducted October 4, 1983 are shown in Table 2. The sludge contained the following concentrations (in ppm) of metals: aluminum, 12,100; copper, 2,340; and chromium, 880. Aluminum was detected at 120 ppm in the lagoon water samples.

An analysis conducted in 1987 by Waste Compliance Services on pickling waste (required by RCRA) revealed chromium and copper concentrations that exceeded RCRA or Act 64 standards resulting in the waste being declared hazardous by county health and state MDNR officials. Additional analyses showed that both trivalent and hexavalent chromium were present in the sample. Table 3 shows the metal concentrations contained in the pickling waste.

As was mentioned in the <u>Background</u> section, the wells serving 7 residences within 1/4 mile of Hi-Mill were tested for VOC and metal contamination in July 1988. No VOCs were detected and the metal concentrations were within acceptable levels as determined by MDPH. Analysis of water samples obtained from Highland Junior High school as well as Brooks Elementary School (both within a 3-mile radius of the site) detected no VOCs and acceptable metal concentrations.

The results of the testing on October 4, 1988, indicated that trichloroethylene (as well as other VOCs) was present in well #1 and well #2 at 24 and 3 parts per billion (ppb), respectively. Table 4 shows the results of all on-site well sampling conducted from March, 1988 to November 2, 1988.

A limited hydrogeological study of the site in November 1988 found no organic contaminants in deep ground water. Soil samples taken near the contaminated wells showed no chlorinated solvents.

An April 1984 biological survey of the nearby marsh found few fish or bottom-dwelling organisms, but an otherwise healthy ecosystem. It could not be determined from the limited survey data whether the absence of organisms noted was due to chemical contamination, to fluctuations of the marsh water level or some other factor. Certain copper-sensitive micro-organisms (Daphnia sp.) were abundant in samples taken from the location point with the highest copper concentrations detected in the water. There is no information available regarding analyses of marsh or lake biota for bioaccumulation of contaminants.

PATHWAYS ANALYSES

A. Environmental Pathways

The area of the site in Oakland County is underlain by glacial till composed of clay, sand and gravel. This till commonly

contains lenses of sand and gravel which may contain large quantities of water. Based on hydrogeological studies performed on the permeability of this aquifer system, it has been shown that these aquifers are connected. A representative sampling of well logs indicate that residents in the vicinity of Hi-Mill Manufacturing are drawing from glacial deposits of the same depth range. The facility and the adjacent marsh lie within the same 10 foot contour interval. The top of the water table is at the ground surface in the vicinity of one monitoring well located 35 feet east of the abandoned lagoon, at an elevation of 1006.0 feet.

According to a MDPH report on community drinking water supplies, no public water supplies are located within a 3 mile radius of the Hi-Mill site. Residents of the area obtain their drinking water from private wells. The primary apparent environmental pathway of concern is through the ground water and its subsequent use as a drinking water supply.

Ground-water flow on the site is east, southeast, and south of the Hi-Mill property into the adjacent marsh and Waterbury Lake. Information obtained from MDNR hydrogeological study in 1981 indicated that copper, aluminum, chromium, and zinc were migrating from the Hi-Mill plant site via shallow ground water and flowing into the adjacent Highland State Recreation area in an east and east-southeast direction. Although hunting and fishing activities occur in the adjacent Highland Recreational Area, bioaccumulation of aluminum, copper, chromium, and zinc in game and fish species would not be expected to pose a public health problem.

There is a 25 to 50 foot thick layer of stiff blue clay beneath 5 to 7 feet of surface soil at the site. This clay layer should prevent any transport of contaminants from the surface soil to deeper aquifers. The removal of contaminated sludge from the lagoon, the practice of off-site waste disposal initiated in 1983, and the discontinuation of the pickling process in 1988 should minimize further metal migration into the ground water and adjacent marsh.

Air transport of these contaminants outside of the industrial setting is not seen as an important pathway of contaminant migration.

B. Human Exposure Pathways

Human exposure to the VOCs, specifically trichloroethylene, and the metals chromium, aluminum, and copper is of concern. Exposure may come through ingestion, dermal contact, or inhalation of volatilized chemicals or of aerosols secondary to household use of contaminated water. A potential secondary

pathway for human exposure exists from the chance of ingestion of contaminated game fish or animals. This is not a likely pathway because the involved contaminants do not typically bioaccumulate to significant levels in biota. Contact with contaminated soils, surface water, and sediments may lead to human exposure through dermal absorption or incidental or deliberate ingestion. The contaminants of concern at the site do not absorb readily through the skin, and the potentially contaminated area is not likely to draw frequent visits. Children of an age to deliberately ingest soil (pica behavior) are not likely to visit the area.

PUBLIC HEALTH IMPLICATIONS

The ground-water contamination levels appear to be elevated in comparison with background levels. Chromium and TCE exceeded the current U.S. EPA standards for drinking water (100 ug/L and 5 The presence of VOCs, specifically TCE, in ug/L respectively). the ground water at the site has only been seen in Hi-Mill's two former wells and on-site monitoring wells. Metals may have migrated off-site through the ground water, but the hydrology suggests that shallow ground water discharges to surface water bodies before it can reach off-site residential wells. No evidence has been seen of off-site residential well contamination. Bottled water was supplied to the company's employees before the contamination was discovered, and until a new well was drilled to provide an uncontaminated water supply. The two on-site contaminated wells have been abandoned and sealed with cement. Until they were sealed, the wells remained available for other uses, however, which may have led to exposure through dermal contact or inhalation of volatilized chemicals.

CONCLUSIONS AND RECOMMENDATIONS

Based upon information reviewed, this site is considered to pose an indeterminate public health hazard because of the potential risk to human health resulting from possible exposure to hazardous substances at concentrations that may result in adverse human health effects. As noted in the Environmental
Contamination and Other Hazards section above, human exposure to contaminants may be occurring and has occurred in the past to Hi-Mill employees via contaminated ground water.

MDPH recommends that the further RI work include the following:

- 1. Determination of the extent of ground-water and soil contamination by VOCs and metals both on- and off-site.
- Determination of the hydraulic connection, if any, between the Target Pond and Waterbury Lake.

3. Periodic (6 month intervals) sampling of ground water to determine the concentration and/or migration of the contaminants of concern on-site and off-site.

The Hi-Mill Manufacturing site has been evaluated for appropriate follow-up with respect to health activities. In this regard, it is recommended that federal, state, and local health agencies cooperate in developing a program of information, education, and advice to local residents concerning the potential health hazards associated with the site. No other follow-up health activities are being considered at this time. When indicated by public health needs, and as resources permit, the evaluation of additional relevant health outcome data and community concern, if available, is recommended.

PREPARERS OF REPORT

Michigan Department of Public Health

Vaughn E. Wagner, Ph.D., Environmental Toxicologist

Principal Investigator John L. Hesse

ATSDR Regional Representative

Denise Jordan-Izaguirre Regional Services, Region V Office of the Assistant Administrator

ATSDR Technical Project Officer

Richard E. Gillig
Environmental Health Scientist
Division of Health Assessment and Consultation
Remedial Programs Branch

CERTIFICATION

This Health Assessment was prepared by the Michigan Department of Public Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with the approved methodology and procedures existing at the time the health assessment was initiated.

Technical Project Officer, SPS, RPB, DHAC

The Division of Health Assessment and Consultation (DHAC), ATSDR, has reviewed this Health Assessment and concurs with its findings.

Division Director, DHAC, ATSDR

SOURCES

Anderson, P., Ecology and Environment Inc, June 9, 1986.

Atcon Corp., Report on the analysis of lagoon water and lagoon sludge, October 4, 1983.

Beard, R., Hi-Mill Manufacturing, Highland, Michigan.

MDPH site visit, February 22-23, 1989.

Frick, G., Oakland County Health Division, Department of Institutional and Human Services, Oakland County.

Harless, J.M., Techna Corporation, Plymouth, Michigan.

Hazard Ranking System Report, June 23, 1986.

Holben, Ronald J., Division of Water Supply, Bureau of Environmental and Occupational Health, Michigan Department of Public Health.

Kenaga, D., Michigan Department of Natural Resources, "A Biological and Water and Sediment Chemistry Survey of Waterbury and Adjacent Marsh, Oakland County, Michigan." April 26, 1984.

Kubik, Karen, Oakland County Health Division, Department of Institutional and Human Services, Oakland County.

Kubik, Karen, Oakland County Health Division, Department of Institutional and Human Services, Oakland County, letter to Brendan Boyle, MDPH, April 15, 1991.

Larsen, D., Division of Environmental Response, Michigan Department of Natural Resources.

Michigan Department of Natural Resources, Water Quality Division, Groundwater Unit, "A Hydrogeological Study of the Vicinity of Hi-Mill Manufacturing, Highland, Michigan." August 31, 1982.

Ryan, S., Ecology and Environment Inc., June 5, 1985.

Techna Corporation, Hi-Mill Manufacturing Company: Draft Remedial Investigation Report and Baseline Risk Assessment, June 21, 1990.

Table 1.

Total metal concentrations in parts per billion (ppb) of on-site ground-water samples, Hi-Mill Manufacturing, May 19, 1981.

Well	Depth (ft)	ca*	Cr	Cu	Ni	Pb	Zn	Al
HM6 (back- ground)	6.8	K20**	K50	30	K50	K50	K50	1,800
HM1	6.9	K20	110	230	K50	K50	110	4,600
HM2	6.9	K20	80	30	K50	K50	60	2,500
НМ3	3.8	K20	160	480	K50	K50	240	4,000
HM4	4.6	K20	130	840	K50	K50	K50	3,000
НМ5	4.0	K20	K50	90	K50	K50	70	7,900

Cd = Cadmium, Cr = Chromium, Cu = Copper, Ni = Nickel,
Pb = Lead, Zn = Zinc, Al = Aluminum.

[&]quot; K = Actual value is less than value given

Table 2.

Metal concentrations (ppm) in lagoon water and sludge samples obtained from Hi-Mill Manufacturing, Oct. 4, 1983.

etal	Lagoon water	Lagoon Sludge
otal Cr	0.32	880
	120	12,100
	54	2,340
	0.38	9.1
	18	200
L & ease	1.9	2,400

Table 3.

Metal Concentrations (ppm) in pickling waste obtained from Hi-Mill Manufacturing, August 17, 1988.

Metal	EP Toxic Levels	Sample Results
Arsenic (As)	5	0.061
Barium (Ba)	100	1.4
Cadmium (Cd)	1	0.075
Chromium (Cr)"	5	345
Lead (Pb)	5	<0.050
Mercury (Hg)	0.2	<0.002
Selenium (Se)	1	<0.050
Silver (Ag)	5	0.10
Copper (Cu)	100	980
Zinc (Zn)	500	18

Extraction Procedure Toxicity, used as standards under both RCRA and Michigan Act 64.

^{**} Additional analytical tests revealed that trivalent Cr was detected at 523 ppm and hexavalent Cr was found at 369 ppm.

Table 4.

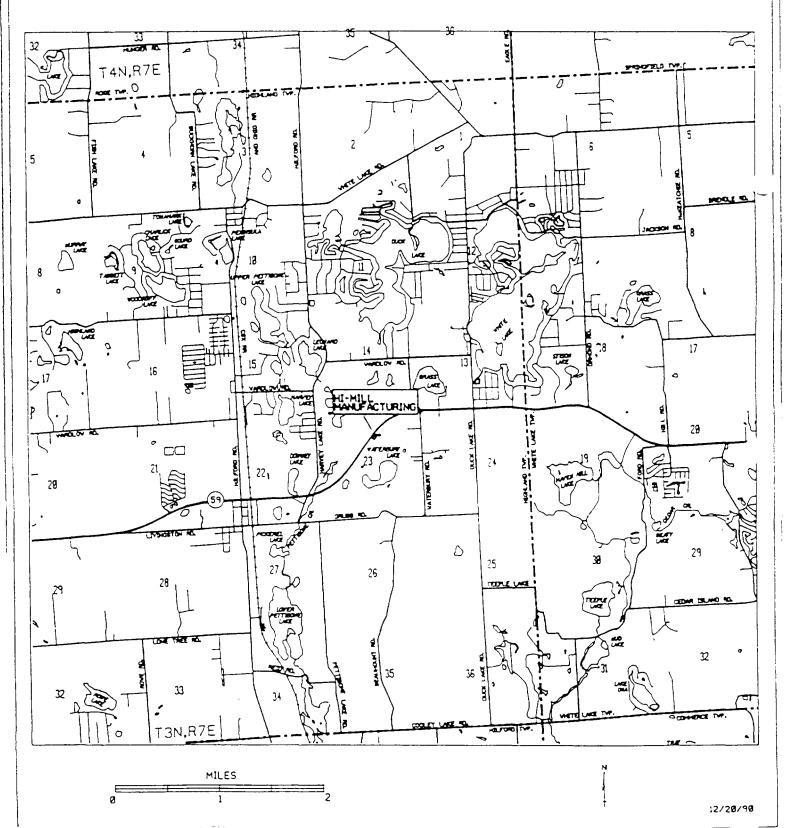
Results of water sampling trials from wells #1 and 2 at Hi-Mill Manufacturing NPL site, March to November 2, 1988.

DATE SAMPLED	SAMPLING POINT	WELL ID	CONTAMINANT	LEVEL DETECTED (ppb)
3/22/88	distribution system	composite sample	chlorodibromomethane chloroform dichlorobromomethane total trihalomethane benzene	20 14
6/29/88	<pre>bathroom; hand sink</pre>	composite sample	(no VOCs detected)	
7/14/88	bottom of pressure tank	well #1	benzene	4
	bottom of pressure tank	well #2	trichloroethylene	1
9/1/88	hand sink	composite sample	(no VOCs detected)	
10/4/88	sampling tap	well #1	cis-1,2-dichloro- ethylene trichloroethylene	2 2 4
	sampling tap	well #2	trichloroethylene	3
10/12/88	sampling tap	well #1	trichloroethylene cis-1,2-dichloro- ethylene	3 2
	sampling tap	well #2	trichloroethylene	12
11/2/88	sampling tap	well #1	trichloroethylene cis-1,2-dichloro- ethylene	7 2
	sampling tap	well #2	trichloroethylene	3

Figure 1. Site Location

HI-MILL MANUFACTURING

CAKLAND COUNTY



RESPONSIVENESS STATEMENT

The following comments were received on the Hi-Mill Manufacturing Preliminary Health Assessment during the April 5, 1991 to May 6, 1991 Public Comment Period. The three comments were received from an attorney representing a corporate client. Attachments referred to in these comments are not included; rather, the referenced attachments were sent in letters by the commentors to the Michigan Department of Public Health.

Comment: Hi-Mill is currently in the Remedial Investigation stage of the CERCLA process. On May 15, 1991, Hi-Mill will submit its Phase II Hydrogeologic Investigation Work Plan. Plan identifies the additional field work which will be conducted at the site to determine whether actionable contamination exists. Thereafter, a Feasibility Study will be prepared by Hi-Mill and submitted for USEPA review and comment. Finally, a Record of Decision will be issued identifying, if necessary, the selected cleanup program. The Record of Decision is expected to be available in the second governmental quarter of 1992. it is important to note that potential soil and groundwater contamination at the site remains under investigation at this point in time. The conclusion made in the summary portion of the draft: "The contamination in the groundwater has migrated off site ... " is, therefore, premature.

Response: Re-examination of the data in the draft Remedial Investigation Report indicates that the conclusion is probably premature. The language has been modified to state that the contamination "may have migrated off-site."

<u>Comment</u>: The Draft is misleading on the current status of the wells at the Hi-Mill facility. The two wells discussed on Page 2 of the Draft have been properly abandoned and a new well has been installed. The new well was subsequently fitted with a High Pressure Reverse Osmosis System to provide additional water purification.

The Draft is also misleading because it indicates that:
"activities such as bathing, sewage disposal, and manufacturing procedures (cooling) could continue to use water from the contaminated wells." This language has prompted a flood of negative press coverage and is wholly inaccurate. (See attached well abandonment and well installation documentation).

Response: Karen A. Kubik of the Oakland County Health Division, Department of Institutional and Human Services, has confirmed to the MDPH that the wells have been properly abandoned. The text has been revised in the final draft to reflect the current situation.

<u>Comment</u>: The MDNR prepared and issued a Biological and Water and Sediment Chemistry Survey of Waterbury Lake and Adjacent Marsh. The report of that study is dated April 26, 1984, and a copy is attached for your review and file. The Draft should reflect the conclusions of that report which include:

"1. Waterbury Lake was not connected with the marsh east of Hi-Mill Manufacturing and was not impacted by Hi-Mill Manufacturing surface water discharges.

Despite the development and issuance of this MDNR report, the Draft indicates that: "The Hi-Mill property borders on the Highland State Recreation area and is adjacent to a marsh that connects to Waterbury Lakes." This statement should be corrected and made consistent with MNDR's report or, in the alternative, should simply state that such a connection, if any, is being investigated.

Response: The Geologic/Hydrogeologic Review section of Geraghty & Miller's "Final Technical Memorandum: Hi-Mill Manufacturing" (January 1991), leaves open the question of any connection between the Target Pond and Waterbury Lake. The text has been changed to say that wetlands adjacent to the site "may connect to Waterbury Lake," and a recommendation to determine whether the water bodies are connected has seen added.